Complete Summary

GUIDELINE TITLE

Serum phosphate.

BIBLIOGRAPHIC SOURCE(S)

Hawley C. Serum phosphate. Nephrology 2006 Apr;11(S1):S201-5.

Hawley C. Serum phosphate. Westmead NSW (Australia): CARI - Caring for Australasians with Renal Impairment; 2005 Oct. 10 p. [21 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Chronic kidney disease
- Hyperphosphatemia

GUIDELINE CATEGORY

Management
Treatment

CLINICAL SPECIALTY

Endocrinology
Family Practice
Internal Medicine

Nephrology
Nutrition
Pediatrics

INTENDED USERS

Dietitians
Physicians

GUIDELINE OBJECTIVE(S)

To explore and collate the evidence to support an appropriate target range for serum phosphate in patients with renal impairment, looking at the outcomes of bone disease, all-cause mortality and disease-specific mortality

TARGET POPULATION

Adults and children with chronic kidney disease

INTERVENTIONS AND PRACTICES CONSIDERED

Maintenance of normal serum phosphate, calcium, and parathyroid hormone levels, and calcium X phosphate product (considered but not recommended)

MAJOR OUTCOMES CONSIDERED

- Mortality
- Metabolic bone disease

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Databases searched: MeSH terms and text words for kidney dialysis were combined with MeSH terms and text words for serum phosphates. This search was carried out in Medline (1966 to April Week 3, 2005). The Cochrane Renal Group Trials Register was also searched for phosphate trials not indexed in Medline. A further Medline search was carried out for the period 1 Feb 2004 to 30 Apr 2005.

Date of searches: 3 March 2004; 30 April 2005.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Recommendations of Others. Recommendations regarding serum phosphate levels in patients with chronic kidney disease from the following groups were discussed: Kidney Disease Outcomes Quality Initiative, UK Renal Association, Canadian Society of Nephrology, European Best Practice Guidelines, and Dieticians' Special Interest Group of the European Dialysis & Transplant Nurses Association, European Renal Care Association.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the levels of evidence (I–IV) can be found at the end of the "Major Recommendations" field.

Guidelines

No recommendations possible based on Level I or II evidence

Suggestions for Clinical Care

(Suggestions are based on Level III and IV evidence)

General comments in relation to bone mineral metabolism:

- In Stage 5 kidney disease, serum phosphate, serum calcium, calcium x phosphate product and parathyroid hormone (PTH) level need to be considered simultaneously when assessing the bone mineral status of a patient: a combination of high calcium, high phosphate and low PTH level being associated with the worst outcome. (Level III evidence – cohort)
- Ideal targets for bone mineral metabolism parameters are unlikely to be met with conventional dialysis methods and available phosphate binders in the majority of patients. (Level III evidence - cohort)

Serum phosphate:

- In Stage 5 kidney disease, a predialysis serum phosphate level of 0.8 to 1.60 mmol/L is recommended as higher levels of serum phosphate have been shown to be associated with an increase in mortality. (Level III evidence – 8 cohort studies including 2 recent large studies with robust analyses and good quality, strong association, consistent effect seen).
- For Stages 3 and 4 kidney disease, serum phosphate should be kept within the normal laboratory reference range. (Opinion)

- It is unclear whether using high doses of phosphate binders, using the newer phosphate binders and/or whether performing longer dialysis to improve the bone mineral metabolism status of patients will translate into improvement in the mortality of patients with chronic kidney disease. (Opinion)
- For patients on haemodialysis, a fasting predialysis blood sample should be used. For other patients, a fasting blood sample should be used. (Level III evidence)

Definitions:

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate management of phosphate levels in patients with chronic kidney disease

POTENTIAL HARMS

Not stated

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2005 Oct

GUIDELINE DEVELOPER(S)

Caring for Australasians with Renal Impairment - Disease Specific Society

SOURCE(S) OF FUNDING

Industry-sponsored funding administered through Kidney Health Australia

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Author: Carmel Hawley

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

All guideline writers are required to fill out a declaration of conflict of interest.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Caring for Australasians with Renal Impairment Web site.

Print copies: Available from Caring for Australasians with Renal Impairment, Locked Bag 4001, Centre for Kidney Research, Westmead NSW, Australia 2145

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- The CARI guidelines. A guide for writers. Caring for Australasians with Renal Impairment. 2006 May. 6 p.

Electronic copies: Available from the Caring for Australasians with Renal Impairment (CARI) Web site.

PATIENT RESOURCES

None available

NGC STATUS

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